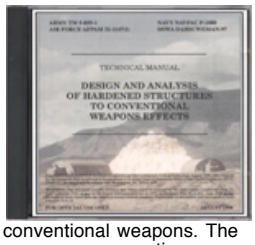
DoD IACs Information Analysis Centers

DTRIAC Provides Support to DTRA Conventional Weapons Effects Program



The 1991 Gulf War with Iraq demonstrated the effective use by coalition air power of advanced, precision-guided conventional munitions against Iraqi forces and military facilities. These weapons significantly contributed to the rapid termination of the conflict. The Defense Threat Reduction Information Analysis Center (DTRIAC), sponsored by the Defense Threat Reduction Agency, supports DTRA's mission to reduce the threat to the United States and its allies from nuclear, biological, and chemical weapons of mass destruction, other special weapons, and from conventional weapons. The scope of DTRIAC's activities includes weapons effects technology, nuclear weapons operations, arms control technology, cooperative threat reduction, information systems, and education and training.

Continued on Story 1

DTRIAC's Weapons Display Area

Most Information Analysis Centers (IAC) provide written or electronic information to their customer. DTRIAC provides an additional means of assisting customers in understanding the history and development of nuclear weapons through the Weapons Display Area (WDA); please note that there are no live weapons in the display. The WDA is located in the Defense Threat Reduction Agency's Defense Nuclear Weapons School at Kirtland AFB, New Mexico. Harry Powell, a DTRIAC employee, is personally responsible for the operation of the WDA.

Continued on Story 2

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DTRIAC's Weapons Display Area (continued)

The WDA is an integral part of courses taught at the Defense Nuclear Weapons School, providing students a unique opportunity to see, first hand, the evolution of nuclear weapons technology and to apply the concepts developed in the classroom. As part of its prominent training role, the WDA benefits the Department of Defense, the Department of Energy National Laboratories, and the nuclear community as a whole, with an opportunity to study design features associated with each weapon.

During the past five years since DTRIAC has assumed responsibility for the maintenance, inventory and control of all WDA historical properties, Harry has acquired hundreds of new artifacts that are historically invaluable and several hundred weapons-related publications and maintenance manuals increasing the uniqueness of both the WDA and DTRIAC.

Harry routinely goes beyond normal preservation and maintenance requirements; he returns the items to their original condition. He has established extensive liaison throughout DoD and DOE for new acquisitions. Sandia National Laboratories has been remediating a classified landfill from the early weapons development days and numerous articles have come from this landfill. These items are in extremely poor condition having been in the landfill for several decades. Rarely does Harry receive items in recognizable condition. They are usually extensively damaged, rusty, crushed and in various states of decay. Harry meticulously researches the item and refurbishes it to new condition. The photos below show before and after refurbishment of an MK25 component.

Before

After

With all the additions, the WDA has become the most comprehensive collection of its kind, tracing the entire evolution of U.S. nuclear weapons from Little Boy and Fat Man, to the most current stockpiled weapons. Given the importance of knowledge preservation in nuclear weapons design, this collection is critical for training and research, as well as for preserving a vital part of our national heritage.

Harry's extensive weapons knowledge makes him the only choice to provide comprehensive tours to high level civilian and military government officials. Due to the overall classification, this collection is not open to the general public. However, even with this constraint, a yearly average of 2200 individuals tour the facility. The WDA is a valuable and integral part of the DTRIAC mission.

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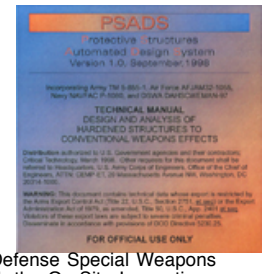
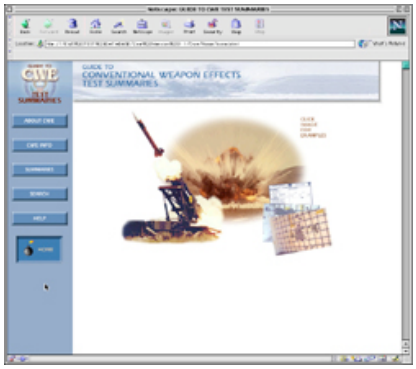


Over the last decade, DTRIAC's engineering and publications staff have supported DTRA in the area of conventional weapons effects (CWE) technology development and application. DTRIAC provided technical integration support to the development of the first authoritative DoD-wide manual on the design and analysis of hardened structures to CWE. This technical manual, Design and Analysis of Hardened Structures to Conventional Weapons Effects, was published in 1998, culminating a seven-year cooperative effort by CWE experts of the Services and the Defense Special Weapons Agency (In 1998 the Defense Special Weapons Agency was merged with the On-Site Inspection Agency, the Defense Technology Security Administration, and other DoD elements to form DTRA).

In an equally daunting and parallel endeavor, DTRIAC contributed to the planning and development of the hyperlinked version of this manual, referred to as the Protective Structures Automated Design System (PSADS). The PSADS incorporates design codes to design and evaluate the robustness of structures to CWE.

Currently, DTRIAC is assisting DTRA Technology Development Directorate in the development, application, and maintenance of a CWE test database, capturing both legacy, current, and (planned for) future DTRA and Service tests in summary form. This database, called the CWE Test Summaries Database (CWETS/DB) and residing on DTRA's limited-access Data Archival and Retrieval Enhancement (DARE, described in a previous DTIC Success Stories edition) system, allows quick-look information search and retrieval useful to weaponeers and Service test designers, test engineers, and weapon program managers in identifying the lethality of tested weapons as well as the robustness or fragility of targeted test items such as structures or vehicles.

Like DARE, the CWETS/DB has access limited to DTRA customers and is not available to the general public.



CWETS/DB is designed to allow users to search for specific test titles or for a series of tests by several modes (weapon name/type, phenomenology, location of test, date, etc.). Test information is provided on several media, to include graphical formats, instrumentation charts, test setup pictures, experimental data graphs, and motion videos. As the database matures, it is becoming more useful to DoD users for new test design, structural damage analysis, weapon/explosive effects analysis, force protection and counter-terrorism study, and other areas of weapon-target interaction.

For more information on the CWETS/DB contact DTRIAC at 703-329-7120.

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